VANADIUM STATISTICS

By Carl A. DiFrancesco and Robert G. Reese, Jr.

[All values in metric tons (t) unless otherwise noted]

Year	Production	Imports	Exports	Stocks	Apparent consumption	Unit value ($/t)	Unit value (98$/t)	World production
1900								
1901	6.80				6.80			
1902	69.1		68.0		1.10			
1903			7.84		22.0			
1904					44.0			
1905					64.0			
1906					84.0			
1907	18.9				18.9			
1908		272			272			
1909					144			
1910					164	2,640	46,000	
1911	61.2				61.2	984	17,000	
1912	272		43.0		229	1,100	19,000	1,040
1913	392		129		263	1,750	28,800	392
1914	410		165		245	1,800	29,300	414
1915	569		180		389	1,850	29,700	1,360
1916	417		435		314	1,690	25,300	1,190
1917	439		200		239	2,400	30,500	1,260
1918	250	16.1	324		269	2,440	26,400	484
1919	258	54.7	14.2		299	2,480	23,400	578
1920	478	188	92.6		573	2,680	21,800	1,640
1921	182	93.5	12.4		263	2,880	26,200	94.4
1922	23.5	277	11.1		289	3,080	29,900	70.8
1923	57.4	27.9	21.1		64.2	3,280	31,300	
1924		128	10.3		118	3,060	29,100	
1925	118	233	23.3		328	2,830	26,200	1,170
1926	300	880			1,180	4,050	37,200	
1927		740			740	3,650	34,100	2,200
1928		59.0			59.0	3,820	36,400	2,810
1929		1,040			1,040	4,000	38,100	2,810
1930		105			105	4,050	39,700	2,190
1931					175	4,490	48,000	661
1932	245				245	4,920	58,700	
1933	1.10				1.10	4,920	61,900	
1934	5.90	104			110	4,780	58,300	118
1935	23.1	42.6			65.7	4,770	56,600	416
1936	63.5	156			220	4,750	55,900	975
1937	493	571			1,060	4,740	53,800	1,950
1938	732	991			1,720	4,720	54,700	2,590
1939	900	968			1,870	4,710	55,300	2,910
1940	981	1,170			2,150	4,690	54,600	3,020
1941	1,140	970	11.6		2,110	4,330	47,900	2,770
1942	2,010	1,170	10		3,170	4,330	43,300	3,870
1943	2,530	960	17.3		3,473	4,920	46,400	4,380
1944	1,600	601	2.9		2,200	4,720	43,700	
1945	1,340	1,580	51.7		2,870	4,720	42,900	2,670
1946	577	368	2.8		942	4,530	37,700	1,390
1947	1,280	479	60.4		1,690	4,530	33,000	1,740
1948	811	477	8.81		1,280	4,720	31,900	
1949	3,190	250	52.3		3,388	4,530	31,000	
1950	2,090	689	18.1		2,761	4,050	27,400	
1951	2,800	473	27.4		3,250	4,600	29,000	
1952	3,270	479	101		3,648	4,920	30,200	

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Year	Production	Imports	Exports	Stocks	Apparent consumption	Unit value ($/t)	Unit value (98$/t)	World production
1953	4,210	1,400	30.2		5,590	4,900	29,900	
1954	2,860	462	98.0		3,220	4,950	30,000	
1955	2,980	83.9	784	256	2,280	4,920	30,000	
1956	3,510		842	256	2,670	4,920	29,500	
1957	3,350		454	256	3,804	5,230	30,300	
1958	2,750		572	250	2,180	4,920	27,800	
1959	3,710	2.72	1,130	316	2,649	5,430	30,300	
1960	4,510	2.72	1,130	750	3,817	5,430	29,800	5,040
1961	4,850		4,160	333	273	5,430	29,500	7,850
1962	4,730		926	346	3,817	5,040	27,100	6,080
1963	3,500		486	409	3,077	5,040	26,800	6,500
1964	3,960	10.9	1,120	674	3,116	4,530	23,800	7,170
1965	4,740		842	751	3,975	4,530	23,300	8,300
1966	4,690	65.3	804	1,790	4,990	4,920	24,700	8,440
1967	4,500	38.1	715	1,080	3,113	4,920	24,000	9,610
1968	5,880	28.1	420	886	5,294	4,530	21,200	11,400
1969	5,060	2,040	261	1,370	7,323	5,940	26,400	10,300
1970	4,830	1,810	883	929	5,316	4,920	20,650	14,900
1971	4,770	2,130	236	585	6,320	11,200	45,150	15,800
1972	4,430	1,270	160	715	5,670	7,280	28,370	15,500
1973	4,410	2,570	852	3,730	9,143	7,280	26,710	16,000
1974	4,870	2,870	1,010	3,540	6,540	8,190	27,060	20,400
1975	4,410	3,840	0	4,100	8,810	8,420	25,510	21,600
1976	5,620	3,510	0	3,720	8,750	13,300	38,090	29,200
1977	4,730	3,260	472	3,960	7,758	13,700	36,740	29,000
1978	5,720	3,050	1,560	2,770	6,020	13,700	34,120	29,400
1979	6,690	3,510	1,810	3,110	8,730	14,000	31,560	37,700
1980	6,370	2,630	1,020	3,870	8,740	12,100	23,910	35,900
1981	7,500	3,410	259	4,280	11,061	12,400	22,150	35,300
1982	5,790	1,720	1,550	4,390	6,070	10,800	18,280	27,200
1983	3,020	669	1,940	4,390	1,749	13,800	22,540	27,200
1984	3,920	1,770	2,360	3,420	2,360	13,800	21,620	31,100
1985	2,450	990	1,240	2,910	1,690	13,800	20,880	
1986	2,110	2,740	1,390	2,480	3,030	13,800	20,480	
1987	2,280	2,570	1,310	2,060	3,120	13,800	19,760	
1988	2,950	2,350	1,580	1,270	2,930	13,400	18,440	
1989	2,390	4,160	3,040	1,740	3,980	24,300	31,930	
1990	2,310	4,690	3,920	1,080	2,420	16,600	20,670	33,200
1991	2,250	1,620	2,860	935	865	11,200	13,420	26,400
1992	1,350	1,790	3,430	1,080	1,823	8,970	10,430	26,700
1993	2,870	3,190	3,100	900	2,780	5,710	6,440	2,500
1994	2,830	4,150	2,790	1,110	4,400	11,600	12,770	3,200
1995	1,990	5,100	2,240	1,100	4,840	11,000	11,790	3,600
1996	3,730	4,650	3,700	1,070	4,650	12,600	13,050	35,100
1997		5,640	2,420	1,000	3,150	15,300	15,590	37,100
1998		7,810	2,400	300	4,710	15,700	15,740	35,000

Vanadium Worksheet Notes

Data Sources
The sources of data for the vanadium worksheet are the mineral statistics publications of the U.S. Bureau of Mines and the U.S. Geological Survey—Minerals Yearbook (MYB) and its predecessor, Mineral Resources of the United States (MR); and Mineral Commodity Summaries (MCS), and its predecessor, Commodity Data Summaries (CDS). The years of publication and corresponding years of data coverage are listed in the References section below. Blank cells in the worksheet indicate that data either were not available or were being withheld because they are proprietary.

Production
Production data were for vanadium contained in mine or mill production and petroleum byproducts in the United States. Data were from the MR and MYB for the years 1901–54, and the CDS and the MCS for the years 1955–98. When possible, the contained vanadium in mill recovery was used to account for vanadium from vanadium and uranium ores, as well as vanadium recovered from ferrophosphorous slag derived from domestic phosphate rock. Blank cells in the worksheet indicate that data were not available for the years 1900, 1903–06, 1908–10, 1924, and 1927–31. Cells for the years 1997–98 are blank because the data are proprietary.

Imports
Import data report (when available) the amount of vanadium content in ash, ore, concentrate, residue, slag; vanadium pentoxide anhydride; other oxides and hydroxides; aluminum-vanadium master alloys, and ferrovanadium imported into the United States. Data were from the MR and MYB for the years 1908–54, and the CDS and the MCS for the years 1955–98. Blank cells in the worksheet indicate that data were not available for the years 1900–07, 1909–17, 1931–33, 1956–58, 1961–63, and 1965.

Exports
Export data report (when available) the total amount of vanadium contained in vanadium pentoxide anhydride, other oxides and hydroxides, aluminum-vanadium master alloys, and ferrovanadium exported from the United States. Data were from the MYB and MR for the years 1902–54, and the CDS and the MCS for the years 1955–98. Blank cells in the worksheet indicate that data were not available for the years 1900–02, 1904–11, and 1926–40.

Stocks
Stocks data report the amount of contained vanadium held in consumer stocks. Data were from the CDS and the MCS for the years 1955-98. Blank cells in the worksheet indicate that data were not available for the years 1900–54.

Apparent Consumption
Apparent consumption was estimated for the years 1901–03, 1907–08, 1911–30, and 1919–98 by using the formula:

APPARENT CONSUMPTION = PRODUCTION + IMPORTS – EXPORTS ± CHANGES IN STOCKS.

Apparent consumption was estimated by interpolation for the years 1903–06, 1909–10, 1916, 1918, 1931 and 1992. Stocks were included when reported. Blank cells in the worksheet indicate that datum was not available for the year 1900.

Unit Value ($/t)
Unit value is the value, in dollars, of 1 metric ton (t) of vanadium apparent consumption. Data were from the MR and MYB for the years 1910–54, and the CDS and the MCS for the years 1955–98. Unit value was estimated for the United States in actual dollars by using the price derived from dividing the vanadium pentoxide price by 0.5602. Unit value was interpolated for the years 1913–14, 1918, 1920–22, 1924, 1927–29, 1931, 1934–40, 1953–54, and 1962–63. Blank cells in the worksheet indicate that data were not available for the years 1900–09.

Unit Value (98$/t)
Dividing the Consumer Price Index conversion factor with 1998 as the base year into the "Unit Value," determined previously, results in unit value in constant 1998 U.S. dollars. Blank cells in the worksheet indicate that data were not available for the years 1900–09.

World Production
World production data were for mine production of vanadium. Data were from the MR and MCS for the years 1902–54, and the CDS and the MCS for the years 1955–98. Blank cells in the worksheet indicate that data were not available for the years 1900–11, 1923–24, 1926, 1932–33, 1944, 1948–59, and 1985–89.

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For more information, please contact:

Robert G. Reese, Jr.
USGS Vanadium Commodity Specialist
(703) 648-4981
rrese@usgs.gov

Carl A. DiFrancesco
Minerals and Materials Analysis Section, USGS
(303) 236-8747 x 324
difrance@usgs.gov